

1 What is claimed is:

2 1. A power assisted drill press comprising:

3 a drill motor having an actuation switch and a bit, said drill motor mounted with a motor
4 frame; and

5 a press frame having a frame support having a first and a second end and a frame base nearest
6 said second end, said motor frame placed nearest said first end whereby said bit is opposite yet
7 substantially pointing toward a plane of said second end; and

8 a gap between said bit and said frame base, said gap allowing a work material to be
9 substantially placed; and

10 a pneumatic feed cylinder substantially mounted with said press frame, said pneumatic feed
11 cylinder having a moving shaft and a pneumatic input port whereby a pneumatic pressure into said
12 input port creates a force onto said shaft and thereby promotes movement of said shaft; and

13 an pneumatic pressure regulator having an output port connected with said input port of said
14 feed cylinder and an activating lever, said regulator supplying said pneumatic pressure from said
15 output port in a value relative to said activating lever displacement and substantially venting said
16 pneumatic pressure when said lever is not displaced,

17 whereby said work material and said bit approach and substantially contact when said moving
18 shaft extends due to said pneumatic pressure provided to said feed cylinder.

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20 2. The power assisted drill press as set forth in claim 1 further comprising:

21 a top plate mounted with said frame support and having one or more guide holes and said feed
22 cylinder attached; and

23 one or more guide rods each having a first end and a second end and slidably engaged through
24 said guide holes; and

25 a motor plate mounted with said motor frame and having said first end of said guide rods
26 attached and positioned to allow extension of said moving shaft of said feed cylinder to cause said
27 motor frame, said motor plate, and said one or more guide rods to move.

28

29 3. The power assisted drill press as set forth in claim 1 whereby:

1 said feed cylinder is attached with said frame base and positioned to allow extension of said
2 moving shaft of said feed cylinder to move said work material toward said bit.

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44. The power assisted drill press as set forth in claim 2 whereby:

5 said frame base comprises a base plate having a through hole of substantially the same size
6 as said frame support; and

7 said base plate slidably fastened with said frame support with said through hole.

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95. The power assisted drill press as set forth in claim 3 whereby:

10 said frame base comprises a base plate having a through hole of substantially the same size
11 as said frame support; and

12 said base plate slidably fastened with said frame support with said through hole.

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146. The power assisted drill press as set forth in claim 2 further comprising:

15 a suction cup having a cup cavity and mounted near said second end of said frame support.

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177. The power assisted drill press as set forth in claim 6 further comprising:

18 a venturi capable of created a vacuum, said vacuum of said venturi connected with said cup
19 cavity of said suction cup whereby when said venturi is activated a vacuum is drawn within said cup
20 cavity, thereby allowing said press frame to suctionally attach to a surface.

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228. The power assisted drill press as set forth in claim 4 further comprising:

23 a suction cup having a cup cavity and mounted near said second end of said frame support;
24 and

25 a venturi capable of created a vacuum, said vacuum of said venturi connected with said cup
26 cavity of said suction cup whereby when said venturi is activated a vacuum is drawn within said cup
27 cavity, thereby allowing said press frame to suctionally attach to a surface; and

28 said base plate further comprising a base plate support substantially opposite from said frame
29 support and rotated away from said bit, said base plate support capable of stabilizing said press frame

1 when said bit approaches said work material.

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3 9. The power assisted drill press as set forth in claim 5 further comprising:

4 a shaft tip having a recess for clearance of said bit, said shaft tip mounted onto said shaft of
5 said pneumatic input port and positioned to align with said bit.

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7 10. The power assisted drill press as set forth in claim 2 further comprising:

8 one or more springs placed upon said one or more guide rods between said second ends of
9 said guide rods and said top plate; and

10 one or more keepers near said second ends of said guide rods whereby said springs are
11 contained between said keepers and said top plate.

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13 11. The power assisted drill press as set forth in claim 6 further comprising:

14 one or more springs placed upon said one or more guide rods between said second ends of
15 said guide rods and said top plate; and

16 one or more keepers near said second ends of said guide rods whereby said springs are
17 contained between said keepers and said top plate.

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19 12. The power assisted drill press as set forth in claim 7 further comprising:

20 a mating plate within said cup cavity, said mating plate having a mating surface capable of
21 substantially conforming to the surface of said work material.

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23 13. The power assisted drill press as set forth in claim 8 further comprising:

24 a mating plate within said cup cavity, said mating plate having a mating surface capable of
25 substantially conforming to the surface of said work material.

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27 14. The power assisted drill press as set forth in claim 1 whereby:

28 said drill motor is a pneumatic drill motor.

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1 15. The power assisted drill press as set forth in claim 1 whereby:

2 said actuation switch of said drill motor and said activating lever of said regulator are
3 positioned to allow a user to utilize an index finger to actuate said drill motor switch while
4 simultaneously utilizing a thumb to actuate said activating lever of said regulator.

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6 16. A power assisted drill press comprising:

7 a press frame having a frame support having a first end and a second end and a top plate
8 attached near said frame first end and a frame base attached near said frame second end; and

9 a drill motor having an actuation switch, said motor attached with said top plate; and

10 a pneumatic feed cylinder having a pneumatic input port and an extending shaft, said cylinder
11 mounted with said frame base and said extending shaft capable of extending toward said drill motor;
12 and

13 an air pressure regulator having an output port connected with said cylinder input port and
14 an activating lever, said regulator supplying a pneumatic pressure from said output port in a value
15 relative to said activating lever displacement and substantially venting said pneumatic pressure when
16 said lever is not displaced; and

17 said extending shaft extending toward said drill motor when said activating lever is displaced
18 and supplying a force relative to said activating lever displacement.

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20 17. A power assisted drill press comprising:

21 a press frame having a frame support having a first end and a second end and a top plate
22 attached near said frame support first end and a frame base attached near said frame support second
23 end; and

24 one or more guide rods, each having a first and a second end, said guide rods slidably
25 mounted with said top plate; and

26 a motor frame having a drill motor and mounted near said first end of said one or more guide
27 rods; and

28 one or more springs slidably mounted between said top plate and said second end of said
29 guide rods; and

1 a pneumatic feed cylinder mounted with said top plate and having an extending shaft capable
2 of contacting said motor frame and also having a pneumatic input port; and
3 an air pressure regulator having an output port connected with said input port of said feed
4 cylinder and a lever capable of supplying a pneumatic pressure to said cylinder relative to the
5 displacement of said lever, whereby said motor frame and guide rods may be moved toward said
6 frame base; and
7 a suction cup having a cup cavity and attached near said second end of said frame support;
8 and
9 a venturi capable of creating a vacuum, said vacuum of said venturi connected with said cup
10 cavity whereby said suction cup may attach with a surface.

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12 18. The power assisted drill press as set forth in claim 17 further comprising:

13 a mating plate within said cup cavity, said mating plate having a mating surface capable of
14 mating with a surface of a work material.

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16 19. A method for utilizing a power assisted drill press on a surface, the steps comprising:

17 forming a power assisted drill press having a drill motor, a bit, and a pneumatic feed cylinder
18 capable of moving said drill motor and bit toward a surface; and

19 connecting an output of an air pressure regulator with said feed cylinder; and

20 attaching a suction cup onto said drill press nearest said surface; and

21 placing a cup cavity of said suction cup onto said surface whereby said suction cup seals onto
22 said surface; and

23 connecting a venturi with said suction cup, said venturi capable of creating a vacuum within
24 said suction cup cavity; and

25 activating said venturi whereby said suction cup suctions with and thereby attaches with said
26 surface; and

27 activating said air pressure regulator substantially proportionally to a desired movement of
28 said bit toward said surface and to a desired force onto said surface; and

29 activating said drill motor whereby said bit performs work on said surface; and

1 releasing said activation of said air pressure regulator whereby said cylinder no longer moves
2 said bit toward said surface; and
3 venting said feed cylinder; and
4 retracting said bit from said surface; and
5 deactivating said venturi; and
6 venting said suction cup; and
7 removing said drill press from said surface.

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9 20. The method for utilizing a power assisted drill press on a surface as set forth in claim 18, the
10 steps further comprising:

11 forming a mating plate with a mating surface which substantially conforms to said surface and
12 which is of equivalent or less size than said cup cavity; and

13 placing said mating plate within said cup cavity whereby said mating surface substantially
14 contacts said surface.

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